

We Claim:

1. A pressure can which is filled with a prepolymer composition for producing polyurethane insulating foams with fire-retardant properties from pressure tanks, wherein said filled pressure can and prepolymer composition comprises:
  - (A) a prepolymer composition itself comprising:
    - (a) a prepolymer component having at least one polyurethane (PU) prepolymer with a content of NCO groups of 4 to 20 wt%
    - (b) polyester-polyols having a molecular weight of between 1000 and 2000 daltons,
    - (c) optionally liquid polybutadiene, and
    - (d) a propellant component,wherein said prepolymer component is halogen-free and has a content of 5 to 40 wt%, of softening phosphates, phosphonates or combinations thereof having the formulae  $O=P(OR)_3$  and  $O=P(OR)_2R$ , wherein R is the same or different and selected from alkyl, aryl, alkyl aryl or arakyl groups having up to 10 carbon atoms based on the prepolymer component,  
said prepolymer component optionally further includes a flame-retardant additive  
which is free from chlorine and bromine,  
wherein said polyurethane prepolymer is a prepolymer prepared by the reaction of aliphatic or aromatic polyisocyanates with castor oil having a hydroxyl number of between about 100 and 300, and
  - (B) a pressure can.
2. The pressure filled can and prepolymer composition of claim 1, wherein the polyurethane (PU) prepolymer is prepared from aliphatic polyisocyanates or aromatic polyisocyanates and polyester polyols, and  
the propellant is a fluorocarbon.
3. The pressure filled can and prepolymer composition of claim 2, wherein the polyisocyanate is prepared from monomers selected from the group consisting of hexamethylene-1,6-diisocyanate, naphthalene-1, 5-diisocyanate, tolylene diisocyanate, isophorone diisocyanate, diphenylmethane diisocyanate and dicyclohexylmethane diisocyanate.

4. The pressure filled can and prepolymer composition of claim 1 wherein the polyester polyols have a molecular weight of 1000 to 2000, and the propellant is a fluorocarbon.
5. The pressure filled can and prepolymer composition of Claim 2, wherein the polyester polyols are prepared from monomers selected from the group consisting of ethylene glycol, glycerine, aromatic polycarboxylic acids and aliphatic polycarboxylic acids.
6. The pressure filled can and prepolymer composition of claim 2 wherein the polyester polyols are at least partly phosphorous-modified.
7. The pressure filled can and prepolymer composition of claim 1 wherein in the prepolymer composition the liquid polybutadiene is present and the content of liquid polybutadiene is between 0.01 to 2 wt% based on the prepolymer composition.
8. The pressure filled can and prepolymer composition of claim 7, wherein the liquid polybutadiene is present and contains about 75% 1,4-cis double bonds, about 24% 1,4-trans double bonds and about 1% vinyl double bonds, has a molecular weight, determined by vapor-pressure osmosis, of about 3000 and a viscosity at 20°C of about 3000 mPa.s.
9. The pressure filled can and prepolymer composition of claim 1, wherein propellant content is 5 to 40 wt% of the prepolymer composition.
10. The pressure filled can and prepolymer composition of claim 1, wherein the propellant component comprises propane, butane, dimethylether or mixtures thereof.
11. The pressure filled can and prepolymer composition of claim 1, wherein the propellant component contains fluorocarbon selected from the group consisting of  $C_2HF_5$ ,  $C_2H_2F_4$  (unsymmetrical),  $C_2H_3F_3$ ,  $C_2H_4F_2$  (unsymmetrical) and mixtures thereof.
12. The pressure filled can and prepolymer composition of claim 1, wherein the prepolymer composition additionally contains a flame-retardant additive which is free from chlorine and bromine.
13. The pressure filled can and prepolymer composition of claim 12, wherein the flame-retardant additive is selected from the group consisting of melamine, melamine cyanurate, dimelamine phosphate, melamine phosphate, cyanodiamide, dicyanodiamide, aluminum trihydrate, ammonium polyphosphate and mixtures thereof.

14. The pressure filled can and prepolymer composition of claim 1, wherein the initial service viscosity of the polyurethane prepolymer at 20°C is 5000 to 20000 mPa.s.

15. The pressure filled can and prepolymer composition of claim 11, wherein the initial service viscosity of the polyurethane prepolymer is between 8000 to 15000 mPa.s.

16. The pressure filled can and prepolymer composition of claim 1 wherein softening phosphates and phosphonates are used for setting polyurethane insulating foams to be flame-retardant, and  
the propellant is a fluorocarbon.

17. The pressure can and prepolymer composition for discharging one component polyurethane insulating foams of the prepolymer composition of claim 1.

18. The pressure filled can and prepolymer composition of Claim 1 wherein the polyester polyols have a molecular weight of 1000 to 2000, and the propellant component is selected from the group consisting of propane, butane, dimethylether and mixtures thereof.

19. The pressure filled can and prepolymer composition of Claim 4 wherein the polyester polyols are prepared from monomers selected from the group consisting of ethylene glycol, glycerine, aromatic polycarboxylic acids and aliphatic polycarboxylic acids.

20. The pressure filled can and prepolymer composition of Claim 5 wherein said polyester polyols are at least partly phosphorous-modified.

21. The pressure filled can and prepolymer composition of Claim 6, wherein the content of liquid polybutadiene is 0.01 to 2 wt% of the prepolymer component.

22. The pressure filled can and prepolymer composition of Claim 8, wherein the propellant content of 5 to 40 wt% of the prepolymer component.

23. The pressure filled can and prepolymer composition of Claim 9, wherein the propellant component comprises propane, butane, dimethylether or combinations thereof.

24. The pressure filled can and prepolymer composition of Claim 10, wherein the propellant component contains fluorocarbon selected from the group consisting of  $C_2HF_5$ ,  $C_2H_2F_4$  (unsymmetrical),  $C_2H_3F_3$ ,  $C_2H_4F_2$  (unsymmetrical) and

mixtures thereof.

25. The pressure filled can and prepolymer composition of Claim 11 wherein the prepolymer composition additionally contains a flame-retardant additive which itself is free from chlorine and bromine.

26. The pressure filled can and prepolymer composition of Claim 13, wherein the initial service viscosity of the PU prepolymer at 20°C is between 5000 to 20000 mPa.s.

27. The pressure filled can and prepolymer composition of Claim 11 wherein softening phosphates and phosphonates are used for the setting polyurethane insulating foams to be flame retardant.

28. The pressure can and prepolymer composition for discharging one component polyurethane insulating foams wherein the composition comprises a prepolymer composition of Claim 15.

29. A prepolymer composition for producing polyurethane insulating foams having fire-retardant properties from pressure tanks, which prepolymer composition comprises:

a prepolymer component with at least one polyurethane (PU) prepolymer with a content of NCO groups of 4 to 20 wt%, and a propellant component, characterized in that the prepolymer component is halogen-free and has a content of 5 to 40 wt%, based on the prepolymer component, of softening phosphates, phosphonates or mixtures thereof with the formula  $O=P(OR)_3$  and  $O=P(OR)_2R$ , wherein R is the same or different and is selected from the group consisting of alkyl, aryl, alkyl aryl and arakyl having up to 10 carbon atoms, wherein the polyurethane prepolymer comprises one prepared by the reaction of aliphatic or aromatic polyisocyanates with castor oil having a hydroxyl number of between about 100 to 300.

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